Selected Abstracts from the April Issue of the European Journal of Vascular and Endovascular Surgery

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Synchronous Carotid Endarterectomy and Off-pump Coronary Bypass: An Updated, Systematic Review of Early Outcomes

Fareed K.R., Rothwell P.M., Mehta Z., Naylor A.R. Eur J Vasc Endovasc Surg 2009;xx:xx-xx.

Objectives: To update our previous systematic review of outcomes following synchronous carotid endarterectomy (CEA) and off-pump coronary artery bypass grafting (OFF-CABG).

Design: A systematic review of operative risks reported in published studies of synchronous CEA plus OFF-CABG procedures.

Results: We identified 12 eligible studies, including data on 324 synchronous CEA plus OFF-CABG procedures. Operative mortality was 1.5% (95% confidence interval (CI): 0.3–2.8), the risk of death or ipsilateral stroke was 1.6% (0.4–2.8%), risk of death or any stroke was 2.2% (95% CI: 0.7–3.7) and the risk of death, stroke or myocardial infarction was 3.6% (95% CI: 1.6–5.5).

Conclusions: Limited published data on 324 patients suggest that early outcomes after synchronous CEA plus OFFCABG are better than those following staged or synchronous CEA plus CABG where the cardiac procedure was performed on-pump. This may, however, be attributed to publication bias, case selection or the fact that the aorta was not manipulated or cannulated, rather than CEA being primarily responsible for the lower stroke risk. Colleagues with unpublished experience of CEA plus OFF-CABG are encouraged to submit their data to further inform the debate.

A Systematic Review and Meta-analysis of 30-Day Outcomes Following Staged Carotid Artery Stenting and Coronary Bypass

Naylor A. Ross, Mehta Z., Rothwell P.M. Eur J Vasc Endovasc Surg 2009;xx:xx-xx.

Objectives: To determine the overall operative risk of cardiovascular events in patients with combined cardiac and carotid artery disease undergoing staged carotid artery stenting (CAS) and coronary artery bypass grafting (CABG).

Design: Systematic review of operative risks reported in all published studies of CAS plus CABG procedures.

Results: Eleven eligible, published studies were identified which reported data on 760 CAS plus CABG procedures. The majority of patients (87%) were neurologically asymptomatic and 82% had unilateral carotid stenoses. Overall mortality was 5.5% (95% confidence interval, CI: 3.4–7.6), the risk of suffering an ipsilateral stroke was 3.3% (95% CI: 1.6–5.1) and the risk of suffering 'any' stroke was 4.2% (95% CI: 2.4–6.1), while the 30-day risk of myocardial infarction (MI) was only 1.8% (95% CI: 0.5–3.0). However, the 30-day death and ipsilateral stroke rate was 7.5% (95% CI: 4.5–10.5) and the 30-day risk of death and any stroke was 9.1% (95% CI: 6.1–12.0), while the 30-day of death/stroke/MI was 9.4% (7.0–11.8). Cumulative risks in studies where patients underwent CABG within 48 h of CAS were not higher than in comparable studies where CABG was delayed by more than 2 weeks.

Conclusions: In a cohort of predominantly asymptomatic patients with unilateral carotid disease, the 30-day risk of death/any stroke was 9.1%. These data are comparable to previous systematic reviews evaluating the roles of staged and synchronous carotid endarterectomy (CEA) plus CABG, and suggest that staged CAS plus CABG is an attractive and less invasive alternative to CEA plus CABG. However, it remains questionable whether the observed 9% risks can be justified in any asymptomatic patient with unilateral carotid disease.

Serum Myoglobin and Renal Morbidity and Mortality following Thoracic and Thoraco-Abdominal Aortic Repair: Does Rhabdomyolysis Play a Role?

Miller C.C. III, Villa M.A., Sutton J., Lau D., Keyhani K., Estrera A.L., Azizzadeh A., Coogan S.M., Safi H.J. Eur J Vasc Endovasc Surg 2009;xx:xx-xx.

Objectives: The intractability of renal dysfunction following thoracic and thoraco-abdominal aortic repair leads us to believe that the accepted mechanisms of renal injury – ischaemia and embolism – are incompletely explanatory. We studied postoperative myoglobinaemia and renal dysfunction following aortic surgery.

Methods: Between September 2006 and February 2008, we studied serum myoglobin in 109 patients requiring thoracic/thoraco-abdominal repair for three postoperative days. Forty-two of the 109 (38%) patients were female. The median age was 67 years (range 23–84 years). As we have focussed more attention on renal function, our independent renal consultants have dialysed more aggressively. We divided dialysis into: (1) creatinine indication, (2) non-creatinine indication and (3) no dialysis.

Results: Thirteen of the 109 (12%) patients met creatinine indication for dialysis (>4 mg dl^{-1}) and an additional 28 (26%) were dialysed for other reasons. Overall mortality was 12 out of 109 (11%) cases: 11 out of 41 (27%) in dialysed patients and one out of 68 (1.5%) in non-dialysed patients. Mortality did not differ between the indications for dialysis. Predictors of mortality were baseline glomerular filtration rate (GFR), postoperative myoglobin and dialysis. The only predictor of dialysis was postoperative myoglobin.

Conclusion: A strong relationship between postoperative serum myoglobin and renal failure suggests a rhabdomyolysis-like contributing aetiology following thoraco-abdominal aortic repair. We postulate a novel mechanism of renal injury for which mitigation strategies should be developed.

Is Endovascular Repair of Mycotic Aortic Aneurysms a Durable Treatment Option?

Clough R.E., Black S.A., Lyons O.T., Zayed H.A., Bell R.E., Carrell T., Waltham M., Sabharwal T., Taylor P.R. Eur J Vasc Endovasc Surg 2009;xx:xx-xx.

Objective: Endovascular repair for degenerative aortic aneurysms is well established, but its role in those with infective pathology remains controversial. This study aims to assess the durability of endovascular repair with a review of our midterm results.

Method: A retrospective analysis of a prospectively maintained endovascular database (1998–2008) was conducted, which identified 673 consecutive patients with aortic aneurysms.

Results: Nineteen patients (2.8%) were identified with infected aortic aneurysms, in which there were a total of 23 separate aneurysms (16 thoracic and seven abdominal). Six patients (32%) presented with rupture. Eleven patients (58%) had received antibiotics preoperatively for a median duration of 11 days (1–54 days). Fifteen of the 19 (79%) had positive blood cultures, with *Staphylococcus aureus* being the most common organism.

All 19 patients underwent endovascular repair. There were three Type I endoleaks (one requiring conversion to open repair) and two Type II endoleaks. One patient developed transient paraplegia, resolved by cerebrovascular fluid (CSF) drainage, and one patient had a stroke.

The 30-day mortality was 11%, and survival at median follow-up of 20 months (0–83 months) was 73%. All eight deaths in the series were related to aneurysm.

Conclusion: Endovascular treatment of infective aortic pathology provides an early survival benefit; however, concerns over on-going graft infection remain.

Is There a Benefit of Frequent CT Follow-up After EVAR?

Dias N.V., Riva L., Ivancev K., Resch T., Sonesson B., Malina M. Eur J Vasc Endovasc Surg 2009;xx:xx-xx.

Objective: Imaging follow-up (FU) after endovascular aneurysm repair (EVAR) is usually performed by periodic contrast-enhanced computed tomography (CT) scans. This study aims to evaluate the effectiveness of CT-FU after EVAR.

Methods: In this study, 279 of 304 consecutive patients (261 male, aged 74 years (interquartile range (IQR): 70–79 years) with a median abdominal aortic aneurysm (AAA) diameter of 58 mm (IQR: 53–67 mm)) underwent at least one of the yearly CT scans and plain abdominal films after EVAR. All patients received Zenith stent-grafts for non-ruptured AAAs at a single institution. Patients were considered asymptomatic when a re-intervention was done solely due to an imaging FU finding. The data were prospectively entered in a computer database and retrospectively analysed.

Results: As a follow-up, 1167 CT scans were performed at a median of 54 months (IQR: 34–74 months) after EVAR. Twenty-seven patients exhibited postoperative AAA expansion (a 5-year expansion-free rate of 88 ± 2%), and 57 patients underwent 78 postoperative re-interventions